

# CHARACTERIZATION OF RELATIVE DELAYS OF GPS/GLONASS TIME EQUIPMENT

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- **BIPM will continue its GPS/GLONASS C/A-code/P-code calibration campaigns; new receivers are dedicated for this purpose.**
- **A new BIPM GPS/GLONASS calibration campaign between Paris Observatory and VNIIFTRI in Moscow is ongoing.**
- **There is now available BIPM webpage providing results of all past calibrations and announcing new ones.**  
<http://www.bipm.org/jsp/en/TimeCalibrations.jsp>
- **Present calibration will allow beginning of GLONASS Time Transfer Pilot Project.**

## Calibrations between NIST and OP

$d$  are differential time corrections to be added to  $[UTC(NIST)-UTC(OP)]$ , and  $u(d)$  are estimated uncertainties for the periods of comparisons.

Date	$d/ns$	$u(d)/ns$	Reference	Note
July 1983	0.0	2.0	[1]	
January 1985	-7.0	13.0	[2]	(1)
September 1986	0.7	2.0	Metrologia, 24	(2)
October 1986	-1.4	2.0	Metrologia, 24	(2)
January 1988	-3.8	3.0	[3]	(2)
April 1988	0.6	3.0	[4]	(2)
March 1994	2.6	1.5	BIPM Report-1994/03	(2)
March 1995	-3.7	1.0	[5]	(2)
May 1996	-0.7	1.5	[6]	(2)
May 2002	-5.0	3.0	<a href="#">BIPM Report-2002/02</a>	(2)
July 2003	-5.6	1.9	[7]	(2)
December 2003	-4.6	3.0	<a href="#">BIPM Report-2004/06</a>	(2)
December 2005	-8.7	3.0	<a href="#">BIPM Report-2008/04</a>	(2)

The uncertainties given in this table are conservative. They are mainly driven by the uncertainty due to the ‘round-trip’ reproducibility at the OP.

## References

- [1] D. Allan, D. Davis, M.A. Weiss, Personal communication, 1983.
- [2] J. Buisson, Personal communication, 1985.
- [3] BIPM Calibration Certificate of 19 January 1988.
- [4] BIPM Letter of 15 June 1988, BG/9G.69.
- [5] M.A. Weiss, "Calibration of OP Receiver AOA51 Against NIST Receiver NBS10" March 1995.
- [6] M.A. Weiss, "Calibration of OP Receiver AOA51 Against NIST Receiver NBS10" March 1996.
- [7] M.A. Weiss, "Calibration of OP Receiver AOA51 Against NIST Receiver NBS10" July 2003.